

R E M A R K S

The Abstract of the Disclosure has been amended as suggested by the examiner. The claims have been amended by rewriting claims 6-9, canceling claims 1-5 and 10-15. Claims 6-9 remain in the application.

Reconsideration of this application is respectfully requested.

Allowable Subject Matter:

Claim 8 is objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form, including all other limitations of the base claim and any intervening claims.

Claim 8 has been rewritten as an independent claim and is now believed to be in condition for allowance.

Claims 6, 7, and 9 have been amended to depend from amended claim 8 are therefore believed to be in condition for allowance.

Accordingly, this application is believed to be in proper form for allowance and an early notice of allowance is respectfully requested.

Please charge any fees associated herewith, including extension of time fees, to 502117.

Respectfully submitted,

DOCKET NO.: CM012971

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Amendment of Abstract of the Disclosure

A method [is provided] for forming an embedded low profile capacitor in a multilayer printed circuit board. The method entails providing a first metal plate on a dielectric substrate. A dielectric layer of a photopolymeric material is applied onto a first region of the first metal plate, surrounded by a second region that is exposed. A second metal plate is deposited onto the dielectric layer and the second region of the first metal plate. The second plate is then patterned to define an upper electrode on the dielectric layer that is electrically isolated from the first metal plate. This may be accomplished by forming a trench in the second metal plate above the dielectric layer. In one aspect, the resulting capacitor thus comprises a lower electrode structure derived mainly from the first metal plate, a dielectric layer overlying the first region of the first metal plate and an upper electrode overlying the dielectric layer. The lower metal structure also includes an extension deposited onto the second region of the first metal layer about the dielectric layer and including a lip overlying a perimeter of the dielectric layer surface.

CLAIMS

6. (amended) The method of claim [5] 8 where the dielectric layer is between about 5 and 50 microns thick.

7. (amended) The method of claim [5] 8 wherein photopolymeric material is an epoxy based resin.

8. (amended) A method of forming a capacitor on a printed circuit board, the method comprising the steps of: [The method of claim 5 wherein the step of patterning the photopolymeric film comprises:]

providing a first metal plate on a dielectric substrate, said first metal plate having a first region and a second region about the first region,

applying a photopolymeric film of a photosensitive polymer over said first metal plate, said photopolymeric film having a substantially uniform thickness,

patterning the photopolymeric film to define a dielectric layer overlying the first region of the first metal plate and to expose the second region of the first metal plate by selectively irradiating a first portion of said photopolymeric film overlying the first region of the first metal plate while avoiding irradiation of a remaining portion, said first portion being irradiated by actinic radiation effective to initiate polymerization of the photosensitive polymer, said portion being sized and shaped corresponding to the dielectric layer,

heating the photopolymeric layer to partially cure the first portion,

removing the remaining portion to expose the first metal

plate about the partially cured, first portion, and

further heating the partially cured first portion to further cure the photosensitive polymeric material,

plating a second metal plate onto the dielectric layer and the second region of the first metal plate such that the dielectric layer is enclosed within the first metal plate and the second metal plate,

patterning said second metal plate to form an upper electrode overlying the dielectric layer and electrically isolated from the first metal plate and to concurrently pattern the second metal plate to form a lower electrode underlying the dielectric layer and cooperating with the upper electrode and the dielectric layer to form a capacitor,

applying a polymeric coating overlying the capacitor,

defining a via in said polymeric coating communicating with said upper electrode, and

depositing metal into the via to form an electrical connection to the upper electrode.

9. (amended) A method of claim [5] 8 wherein the first metal plate and the second metal plate are formed of copper.